



# MECHANICAL DATA SHEET

## SHELL AND TUBE HEAT EXCHANGER

Plant Item No.  
24590-PTF-ME-FEP-COND-00003B

Data Sheet No.  
24590-PTF-MED-FEP-P0008

R10275207

Project:	<b>RPP-WTP</b>	Description:	<b>Waste Feed Evaporator After-Condenser</b>
Project No:	<b>24590</b>	P&ID:	<b>24590-PTF-M6-FEP-P0005</b>
Site:	<b>Hanford</b>	Process Data Sht:	<b>NIA</b>
Process flow diagram:	<b>24590-PTF-M5-V17T-P0004002</b>	Manufacturer Name	<b>Framatome ANP / Northwest Copper Works, Inc.</b>

### General Data

Quality Level	<b>QL-1 (note 2)</b>	TEMA (Class/Type)	<b>B</b>	*
Seismic Category	<b>SC-I</b>	Flow Type (Counter current, etc)	*	ISSUED BY
Design Code	<b>ASME VIII, Div 1</b>	Heat Exchanger Duty	Btu/hr	*
Code Stamp	<b>Yes</b>	Heat Exchanger Area	ft <sup>2</sup>	*
NB Registration	<b>Yes</b>	ΔT (LMTD/Corrected LMTD)	°F	*

### Thermal/Hydraulic Data

	Shell Side	Tube Side
Fluid Name	<b>Steam</b>	<b>Cooling Water</b>
Fluid Quantities: Total	lbm/hr	*
Condensable Vapor (In/Out)	*	*
Liquid	*	*
Noncondensable	*	*
Temperature (In/Out)	°F	<b>75</b>
Specific Gravity	*	*
Viscosity	cP	*
Molecular Weight, Vapor	*	*
Molecular Weight, Noncondensable	*	*
Specific Heat	Btu/lbm-°F	*
Thermal Conductivity	Btu/hr-ft-°F	*
Latent Heat	Btu/lbm @ °F	*
Inlet pressure	psia	<b>59.7</b>
Tube side Velocity	ft/s	*
Pressure Drop (Actual)	psi	*
Fouling Resistance (Min)	hr-ft <sup>2</sup> -°F/Btu	<b>0.0044**</b>

Note: Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.



EXPIRES 12/10/04

This Bound Document Contains a Total of 2 Pages.

Rev	Description	By	Checked	Approved	Date
0	Issued for Permitting Use	E. Le <i>Whe</i>	D. Reinemann <i>RR</i>	J. Julyk <i>Julyk</i>	3/17/04



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24590-PTF-ME-FEP-COND-00003B

**Data Sheet No.**  
24590-PTF-MED-FEP-00008

### Mechanical Data

		Shell Side		Tube Side	
Design Pressure (Max/Min)	psig	50	Full vacuum	100	Full vacuum
Design Temperature (Max/Min)	°F	250	49	250	49
Corrosion Allowance	inch	0.04		N/A	
Erosion Allowance	inch	N/A		N/A	
Shell OD / ID	inch	*		Overall Dimensions (H x W x L)	inch
Total No. of Tubes		*		Tube OD	inch

### Material Data

Shell	SA 240 316L SS	Shell Cover	SA 240 316L SS
Channel/Bonnet	SA 240 316L SS	Channel Cover	SA 240 316L SS
Tube	SA 269 316L SS	Floating Head Cover	N/A
Stationary Tube Sheet	316L SS	Floating Tube Sheet	N/A
Shell Side Gaskets	N/A	Tube Side Gaskets	316L SS spiral wound
Partition Seals	N/A	Baffles/Supports	SA 240 316L
Insulation	N/A	Forgings (Shell side)	SA 182 F316L
Bolting	SA193B8M	Forgings (Channel)	SA 182 F316L

### Construction Data (To be determined by the seller when not specified by the buyer)

Cross Baffle Type	*	% Baffle Cut (Dia.)	*	Spacing (c/c)	inch	*
Bypass Seal Arrangement	*	Longitudinal Seal Type	*	Expansion Joint Type		*
Inlet Nozzle pV <sup>2</sup>	*	Bundle Entrance pV <sup>2</sup>	*	Bundle Exit pV <sup>2</sup>		*
Tube Support Type	*	U-bend Support Type	*	Weight of Bundle	lbf	*
Operating Weight	lbf	Full of Water	lbf	Weight of Shell	lbf	*

### Notes

\* To be determined by Seller

\*\* To be verified by Seller

**Notes: (1) All welds are continuous to avoid crevices, weld surface finish is descaled as laid.**

**(2) All welded construction on process side only.**

**(3) Tube to tubesheet joint shall be strength welded.**